CLAIMS:

What is claimed is:

1. A storage medium load and unload apparatus for diverting a storage medium insertion impact force, comprising:

a shuttle having a first pin with a first radius extending from a side surface of the shuttle and a protrusion having a posterior edge extending from the side surface, wherein the posterior edge is displaced a first distance from a center of the first pin; and

a fixed side plate having a flange with a vertical edge and a first slot with which the first pin is engaged has an anterior edge and a curved posterior edge with a first width between the anterior edge and the curved posterior edge, wherein the vertical edge of the flange is displaced a second distance from the anterior edge of the first slot,

wherein a sum of the first width and the second distance is greater than the sum of the first distance and the first radius.

2. The apparatus of claim 1, wherein the first slot has a vertical posterior edge conjoined with the curved edge and displaced vertically below the curved posterior edge, wherein a second width of the first slot at the vertical posterior edge is less than the first width.

3. The apparatus of claim 1, wherein the protrusion is constrained to vertical displacements when in abutment with the vertical edge of the flange.

4. The apparatus of claim 1, wherein the shuttle comprises a second pin having a second radius extending from the side surface, the second pin displaced by a third distance from the protrusion posterior edge, and the fixed plate comprises a second slot having an anterior edge and a curved posterior edge with the first width separating the anterior edge and the curved posterior edge of the second slot,

wherein the second pin is engaged with the second slot and a sum of the first width and the second distance is greater than a sum of the third distance and the second radius.

5. The apparatus of claim 1, further comprising:
a moveable side plate having a partially ramped slot with a horizontal slot portion and a ramped slot portion,

wherein the first pin is engaged with the partially ramped slot.

6. The apparatus of claim 5, wherein the moveable side plate comprises a horizontal slot, and the shuttle comprises a second pin extending from the side surface,

wherein the second pin is engaged with the horizontal slot.

7. The apparatus of claim 1, further comprising:
a cam having a spiral slot extending from a first radius of the cam to a second radius of the cam, wherein the pin is engaged with the spiral slot.

8. The apparatus of claim 7, wherein the shuttle is displaceable from an unloaded position to a loaded position, wherein an outer end of the spiral slot is positioned outside the first slot when the shuttle is positioned in the unloaded position.

9. The apparatus of claim 1, wherein the first slot comprises a second curved surface with the first width between the second curved surface and the anterior edge, and the shuttle comprises a second pin extending from the side surface,
wherein the second pin is engaged with the first slot.

10. The apparatus of claim 9, wherein a maximum width between the anterior edge and the first curved surface is vertically displaced by a third distance from a maximum width between the anterior edge and the second curved surface.

11. The apparatus of claim 10, wherein the first pin and the second pin are vertically displaced by the third distance.

12. The apparatus of claim 1, wherein a width of the first slot tapers from the first width to a second width less than the first width.

13. The apparatus of claim 12, wherein the second width is located vertically below the first width.

14. The apparatus of claim 1, wherein the first pin is rectilinearly displaceable within the first slot.

15. A load and unload apparatus for diverting an impact force applied to the load and unload apparatus, comprising:

a shuttle having a cavity configured to accept a storage medium;

an elevator mechanism for reciprocally elevating and lowering the shuttle; and

an impact diversion mechanism for diverting an impact force resulting from insertion of the storage medium into the cavity in the shuttle,

wherein the impact diversion mechanism diverts the impact force to a side surface of the shuttle.

16. The load and unload apparatus of claim 15, wherein the impact diversion mechanism comprises a protrusion extending from the side surface and a flange located within the apparatus.

17. The load and unload apparatus of claim 15, wherein the impact diversion mechanism comprises a flange located on a fixed side plate of the apparatus.

18. The load and unload apparatus of claim 17, wherein the impact diversion mechanism further comprises a protrusion extending from the side surface of the shuttle that is brought into abutment with the flange on application of the impact force to the shuttle.

19. The load and unload apparatus of claim 15, further comprising:

a pin extending from the side surface; and

a slot having a tapered width, wherein

the pin is engaged with the slot at a first position in the slot having a first width when the shuttle is located in an unloaded position for reception of the storage medium.

20. The load and unload apparatus of claim 19, wherein the shuttle is reciprocally displaceable from the unloaded position to a loaded position,

wherein the pin is engaged with the slot at a second position in the slot having a second width when the shuttle is located in the loaded position, the first width greater than the second width.